

CLAIMS

What is claimed is:

1. An inspecting apparatus for a semiconductor device comprising:
 - a match plate;
 - a contact module combinable with the match plate and comprising,
 - a radiator to transfer heat away from the semiconductor device, and
 - a tester to contact leads of the semiconductor device;
 - an insert module installed on a bottom of the contact module, having a semiconductor device accommodator to accommodate the semiconductor device; and
 - an auxiliary radiation member installed on a bottom of the insert module, to radiate heat from the semiconductor device to the outside.
2. The inspecting apparatus according to claim 1, wherein the insert module is partitioned into a plurality of semiconductor device accommodators by a horizontal partition wall and a vertical partition wall.
3. The inspecting apparatus according to claim 2, wherein the insert module is partitioned into 4 semiconductor device accommodators to accommodate 4 semiconductor devices.
4. The inspecting apparatus according to claim 2, wherein the horizontal partition wall and the vertical partition wall protrude inward from a bottom of an inside of the insert module.
5. The inspecting apparatus according to claim 2, wherein the insert module is formed with,
 - an upper opening through which the semiconductor device is inserted into the semiconductor device accommodator, and
 - a bottom opening corresponding to the upper opening,

wherein the auxiliary radiation member is disposed on the bottom of the insert module along a longitudinal direction of the insert module to contact the bottom of the semiconductor device through the bottom opening.

6. The inspecting apparatus according to claim 5, wherein each one of the plurality of semiconductor device accommodators comprises a pair of latch members to support opposite sides of the semiconductor device.

7. The inspecting apparatus according to claim 6, wherein the semiconductor device is inserted into one of the plurality of semiconductor device accommodators to be exposed through the bottom opening while contacting the auxiliary radiation member.

8. The inspecting apparatus according to claim 6, wherein the auxiliary radiation member is made of material containing aluminum.

9. The inspecting apparatus according to claim 8, wherein the match plate is selectively raised and lowered with respect to the semiconductor device.

10. The inspecting apparatus according to claim 8, wherein the match plate is formed with a plurality of holes respectively combinable with a plurality of contact modules.

11. The inspecting apparatus according to claim 1, wherein the insert module and the auxiliary radiation member are combined into one body.

12. The inspecting apparatus according to claim 1, wherein the radiator comprises:
a heat sink;
a contact pusher to contact the semiconductor device; and
a heat flat pusher provided between the contact pusher and the heat sink, to transfer heat from the semiconductor device to the heat sink via the contact pusher.

13. The inspecting apparatus according to claim 12, wherein the tester comprises:
a contact block combined with the match plate and formed with a heat sink seat, to accommodate the heat sink, and a through hole through which the heat flat pusher passes; and
a lead pusher combined with a bottom of the contact block to contact the leads of the semiconductor device selectively according to elevation of the contact block by the match plate.

14. The inspecting apparatus according to claim 13, wherein the contact block is formed with an air inlet through which air flows into the heat sink seat and an air outlet through which the air flows out of the heat sink seat.

15. The inspecting apparatus according to claim 14, further comprising:
a first elastic member installed on a circumferential part of the heat flat pusher to allow the contact block and the lead pusher to lift up and down elastically; and
a second elastic member installed between the match plate and the contact block to allow the lead pusher to contact the leads of the semiconductor by elevation of the contact block by the match plate.

16. The inspecting apparatus according to claim 15, wherein the first elastic member and the second elastic member comprise springs, respectively.

17. The inspecting apparatus according to claim 12, wherein the heat sink, the contact pusher, and the heat flat pusher are made of material containing aluminum.

18. The inspecting apparatus according to claim 11, wherein the radiator comprises:
a heat sink;
a contact pusher to contact the semiconductor device; and
a heat flat pusher provided between the contact pusher and the heat sink to transfer heat from the semiconductor device to the heat sink via the contact pusher.

19. The inspecting apparatus according to claim 18, wherein the heat sink is formed with a plurality of groove strips on an outside surface to increase an exposed surface area.

20. The inspecting apparatus according to claim 18, wherein a first side of the contact pusher is formed with a flat face to contact the semiconductor device, and a second side of the contact pusher is combined with the heat flat pusher.

21. The inspecting apparatus according to claim 20, wherein the second side of the contact pusher is screw combined with the heat flat pusher.

22. The inspecting apparatus according to claim 18, wherein a first end of the heat flat pusher is screw combined with the heat sink, and a second end of the heat flat pusher is screw combined with the contact pusher.

23. The inspecting apparatus according to claim 18, wherein the tester comprises:
a contact block combined with the match plate formed with a heat sink seat, to accommodate the heat sink, and a through hole through which the heat flat pusher passes; and
a lead pusher combined with a bottom of the contact block to contact the leads of the semiconductor device selectively according to elevation of the contact block by the match plate.

24. The inspecting apparatus according to claim 23, wherein the contact block is formed with an air inlet through which air flows into the heat sink seat and an air outlet through which the air flows out of the heat sink seat.

25. The inspecting apparatus according to claim 24, further comprising:
a first elastic member installed on a circumferential part of the heat flat pusher to allow the contact block and the lead pusher to lift up and down elastically; and
a second elastic member installed between the match plate and the contact block to allow the lead pusher to contact the leads of the semiconductor device by elevation of the contact block by the match plate.

26. The inspecting apparatus according to claim 25, wherein the first elastic member and the second elastic member comprise springs, respectively.

27. The inspecting apparatus according to claim 18, wherein the heat sink, the contact pusher, and the heat flat pusher are made of material containing aluminum.

28. An insert module for a semiconductor inspecting device, the insert module comprising:

a plurality of semiconductor device accommodators to accommodate a plurality of semiconductor devices;

a plurality auxiliary radiators provided on a bottom of the insert module to transfer heat away from the plurality of semiconductor devices;

a plurality of upper openings through which the plurality of semiconductor devices are inserted into the plurality of semiconductor device accommodators; and

a plurality of bottom openings through which the plurality of auxiliary radiators contact the plurality of semiconductor devices.

29. The insert module of claim 28, wherein each of the plurality of semiconductor device accommodators comprises a plurality of latches to support opposite sides of each of the corresponding semiconductor devices.

30. The insert module of claim 28, wherein each of the plurality of semiconductor device accommodators comprises two latches to support opposite sides of each of the corresponding semiconductor devices.

31. The insert module of claim 29, wherein the insert module further comprises a plurality of latch installations on which the plurality of latches are installed.

32. The insert module of claim 28, wherein the plurality of auxiliary radiators are made of aluminum.

33. The insert module of claim 28, wherein the plurality auxiliary radiators are disposed on the bottom of the insert module along a longitudinal direction of the insert module in pairs.

34. The insert module of claim 28, wherein the plurality of auxiliary radiators are inserted in a cast while the insert module is being formed.

35. The insert module of claim 28, wherein the plurality of semiconductor device accommodators are formed by a plurality of horizontal partition walls and a plurality of vertical partition walls.

36. The insert module of claim 28, wherein the insert module is made of a material containing carbon particles.

37. The insert module of claim 28, wherein the insert module is combinable with a test tray to transport a plurality of insert modules from a manufacturing process to a testing process.